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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,006	09/09/2002	Joseph Robert Brown	201-0659	3749

28549 7590 10/28/2004

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EXAMINER

LEE, PING

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,006

Applicant(s)

BROWN ET AL.

Examiner

Ping Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 6, 8, 9, 14, 15, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Oh (US 5,633,936).

Regarding claim 1, Oh discloses, in Fig. 1, a compensation circuit for a sensor (30) generating an electrical sensor output (28) positioned near (as shown in Fig. 1, microphone 30 is near speaker 62 because microphone 30 picks up audio signal from speaker 62) a speaker (62) of an audio system (telecommunication system, col. 1, lines 6-7), said electrical sensor output (28) altered by acoustics of the speaker (According to Webster's dictionary, acoustics means a science that deals with the production, control, transmission, reception, and effects of sound) (the microphone signal not only has the live voice from 60, it is also altered by audio signal reproduced and transmitted from the speaker 62) comprising: an inverting circuit (16) electrically coupled to an electrical output (20) the audio system (telecommunication system), said inverting circuit generating an inverted electrical signal (22) corresponding a speaker audio output; and a sensor controller (18) coupled to the inverting circuit (16) and said sensor (30), said controller (18) generating a compensate electrical output signal (26) in response to said

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electrical sensor output (28) and said inverted electrical signal (22), said compensated electrical output signal (26) corrected for an alteration by the acoustics of the speaker (the signal 26 is free of the influence by the reproduction and transmission of speaker 26; i.e. echo free).

Regarding claim 3, the claimed pressure sensor reads on the microphone (30).

Regarding claim 6, Oh shows that the sensor controller (18) adds the inverted electrical signal (22) and the electrical sensor output (28).

Regarding claim 8, Oh discloses a compensation circuit, in Fig. 1, comprising: a sensor (30) generating an electrical sensor output (28); a speaker (62) of an audio system (telecommunication system) acoustically (the sound from the speaker 62 coupled to the microphone 30) coupled to said sensor (30); an Inverting circuit (16) coupled to the electrical output (20) of the speaker, said inverting circuit (16) generating an Inverted electrical signal (22) corresponding to a speaker audio output altering the electrical sensor output (the signal 22 represents the echo of the audio signal reproduced from speaker 62 being presented at the microphone); and a sensor controller (18) coupled to the inverting circuit (16) and said sensor (30), said controller (18) generating a compensated electrical output signal (26) in response to said electrical sensor output (28) and said inverted electrical signal (22) said compensated electrical output signal (26) corrected for an alteration by the acoustics of the speaker (62) (the signal 26 is free of the influence by the reproduction and transmission of speaker 26; i.e. echo free).

Regarding claim 9, the claimed pressure sensor reads on the microphone (30).

Regarding claim 14, Oh shows that the sensor controller (18) adds the inverted electrical signal (22) and the electrical sensor output (28).

The method claims as specified in claims 15 and 18-20 correspond to the apparatus claims as discussed above. Therefore, Oh also discloses the claimed method.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nemirovski (US 6,671,379).

Regarding claim 1, Nemirovski discloses, in Fig. 4, a compensation circuit for a sensor (20) generating an electrical sensor output (to 52) positioned near (as shown in Figs. 3 and 4, microphone 20 and speaker 22 are both located in the same ear canal and microphone 20 picks up audio signal from speaker 22) a speaker (22) of an audio

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system (earset), said electrical sensor output (from 20 to 52) altered by acoustics of the speaker (the microphone signal not only represents the pressure in the ear canal, it is also altered by audio signal reproduced and transmitted from the speaker 22; see abstract) comprising: an inverting circuit (58,60) electrically coupled to an electrical output (at the input of 58) the audio system (earset), said inverting circuit (58,60) generating an inverted electrical signal (from 60) corresponding a speaker audio output; and a sensor controller (56) coupled to the inverting circuit (58, 60) and said sensor (20), said controller (56) generating a compensate electrical output signal (from 56 to 62) in response to said electrical sensor output (from 20) and said inverted electrical signal (from 60), said compensate electrical output signal (from 56 to 62) corrected for an alteration by the acoustics of the speaker (the signal 56 is free of the influence by the reproduction and transmission of speaker 26; i.e. feedback free; see abstract).

Regarding claim 8, Nemirovski discloses a compensation circuit, in Fig. 4, comprising: a sensor (20) generating an electrical sensor output (from 20 to 52); a speaker (22) of an audio system (earset) acoustically (the sound from the speaker 22 coupled to the microphone 20) coupled to said sensor (20); an Inverting circuit (58,60) coupled to the electrical output (at the input of 58) of the speaker (22), said inverting circuit (58,60) generating an Inverted electrical signal (from 60) corresponding to a speaker audio output altering the electrical sensor output (the signal from 60 represents the feedback of the audio signal reproduced from speaker 22 being presented at the microphone 20); and a sensor controller (56) coupled to the inverting circuit (58,60) and said sensor (20), said controller (56) generating a compensated electrical output signal

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(from 56 to 62) in response to said electrical sensor output (from 20) and said inverted electrical signal (from 60)) said compensated electrical output signal (from 56) corrected for an alteration (feedback) by the acoustics of the speaker (22) (the signal from 56 is free of the influence by the reproduction and transmission of speaker 26; i.e. feedback free; see abstract).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of Virdee (US 5,473,686).

Regarding claims 5, 11 and 17, Oh fails to explicitly show the structure of the adaptive filter including a delay circuit. It was well known in the art to use FIR filter to generate the signal corresponding to the speaker signal. One skilled in the art would have expected that any well known design of FIR filter could be used for Oh without generating any unexpected result. Virdee teaches such a well known adaptive filter. Thus, it would have been obvious to one of ordinary skill in the art to modify Oh's system by using the well known FIR filter as the adaptive filter as taught in Virdee in order to generate the signal corresponding to the speaker signal.

8. Claims 4, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of Sremac (US 6,002,761).

Regarding claims 4, 10 and 16, Oh fails to show the subwoofer. Oh teaches a general communication system for hand free telephone communication. Sremac teaches a similar hands free telephone with a subwoofer (col. 5, lines 1-2). Thus, it would have been obvious to one of ordinary skill in the art to modify Oh's system by using the telephone as taught in Sremac in order to generate a more realistic sound by adding low frequency signal together with the speech signal.

9. Claims 2, 7, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemirovski in view of Burns et al ("Principles of Electronic Circuits").

Regarding claims 2, 7, 12 and 13, Nemirovski fails to show the op-amp and the resistor. Nemirovski teaches a general inverting amplifier without specifying the detail of the circuit layout. One skilled in the art would have expected that any specific design for providing the equivalent result could be used without generating any unexpected

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result. It was well known in the art to design an inverting amplifier using op-amp and other electronic components. Burns et al (hereafter Burns) teaches such a basic layout of an inverting amplifier. Thus, it would have been obvious to one of ordinary skill in the art to modify Nemirovski's system by using any well known design for the inverting amplifier, such as the one taught in Burns, in order to provide proper output signal to be used for the sensor controller.

Response to Arguments

10. Applicant's arguments filed 7/15/04 have been fully considered but they are not persuasive.

Applicant argued that both Oh and Nemirovski fail to show how the acoustics of a speaker alter the output of the electrical sensor.

The electrical sensor in both Oh and Nemirovski is a microphone. The microphone output signal is altered by the speaker output sound, which is reproduced by the acoustics of the speaker. In Oh, the signal from the speaker is named as echo. The compensation circuit in Oh is designed to eliminate this echo. In Nemirovski, it is named as feedback. The compensation circuit in Nemirovski is designed to eliminate this feedback. Therefore, both Oh and Nemirovski show how the acoustics of a speaker alter the output of the electrical sensor.

Applicant argued that the sensor in both Oh and Nemirovski is not an audio sensor and the sensor in the present application is an electrical sensor.

It is noticed that Oh shows that the microphone detects the voice from a person
60. Therefore, it is an audio sensor. Furthermore, the sensor in Oh generates an

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electrical sensor output. Therefore, the claimed sensor reads on the microphone in Oh.

Nemirovski shows the microphone detects the feedback from the speaker (22).

Therefore, it is an audio sensor. Furthermore, the sensor in Nemirovski generates an electrical sensor output. Therefore, the claimed sensor reads on the microphone in Nemirovski.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 703-305-4865. The examiner can normally be reached on Monday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ping Lee
Primary Examiner
Art Unit 2644

pwl